

Docket No. 206405US-2

IN RE APPLICATION OF: HIROSHI NISHIBORI, ET AL.

SERIAL NO: 09/845,272

FILED: MAY 1, 2001

FOR: POWER SEMICONDUCTOR DEVICE

RESPONSE UNDER 37 CFR 1.116  
EXPEDITED PROCEDURE EXAMINING  
GROUP 2827

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U.S. PATENT & TRADEMARK OFFICE  
EXAMINING CENTER 2800

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

SIR:

Transmitted herewith is an amendment in the above-identified application.

- No additional fee is required
- Small entity status of this application under 37 C.F.R. §1.9 and §1.27 is claimed.
- Additional documents filed herewith: MARKED-UP COPY

The Fee has been calculated as shown below:

| CLAIMS      | CLAIMS<br>REMAINING |  | HIGHEST<br>NUMBER<br>PREVIOUSLY<br>PAID | NO. EXTRA<br>CLAIMS         | RATE     | CALCULATIONS |
|-------------|---------------------|--|---|-----------------------------|----------|--------------|
| TOTAL       | 2                   | MINUS  | 20                                      | 0                           | × \$18 = | \$0.00       |
| INDEPENDENT | 2                   | MINUS  | 3                                       | 0                           | × \$84 = | \$0.00       |
|             |                     | <input type="checkbox"/> MULTIPLE DEPENDENT CLAIMS                   |   | + \$280 =                   |          | \$0.00       |
|             |                     |  |   | TOTAL OF ABOVE CALCULATIONS |          | \$0.00       |
|             |                     | <input type="checkbox"/> Reduction by 50% for filing by Small Entity |   |                             |          | \$0.00       |
|             |                     | <input type="checkbox"/> Recordation of Assignment                   |   | + \$40 =                    |          | \$0.00       |
|             |                     |  |   | TOTAL                       |          | \$0.00       |

- A check in the amount of \_\_\_\_\_ is attached.
- Please charge any additional Fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.
- If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time may be charged to Deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.

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206405US

\*RESPONSE UNDER 37 CFR 1.116-  
EXPEDITED PROCEDURE EXAMINING  
GROUP 2827

H7/B  
(NE)

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF:

HIROSHI NISHIBORI ET AL.

: GROUP ART UNIT: 2827

SERIAL NO: 09/845,272

:

FILED: MAY 1, 2001

: EXAMINER: CRUZ, L.

FOR: POWER SEMICONDUCTOR  
DEVICE

12/18/02  
Abm/H

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TECHNOLOGY CENTER 2800

AMENDMENT UNDER 37 CFR §1.116

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

SIR:

In response to the Official Action mailed October 21, 2002, please amend the above-identified application as follows:

IN THE CLAIMS

Please cancel Claims 1, 2, 5, 6, 8, 9, 11, and 12 without prejudice or disclaimer.

Please amend Claims 3 and 10 as shown in the attached marked-up copy to read as follows:

3. (Amended) A power semiconductor device comprising:

a ceramic substrate having a thickness of 0.5 to 1 mm;

a power semiconductor element;

a circuit pattern made of an aluminum alloy and provided on an upper main surface of said ceramic substrate and having a thickness 0.4 to 0.6 mm on which said power semiconductor element is held;

a lower pattern made of said aluminum alloy and provided entirely on a lower main surface of said ceramic substrate opposite to said upper main surface, wherein a thickness of said lower pattern is 0.2mm or less;

a metal base plate made of a copper alloy having a thickness of 3.5 to 5.5 mm positioned opposite to said lower pattern; and

a soldering layer provided between an entire surface of said lower pattern and said metal base plate for forming a joint therebetween, wherein a thickness of said soldering layer is 100 to 300  $\mu\text{m}$ .

10. (Amended) A power semiconductor device comprising:

a ceramic substrate having a thickness of 0.5 to 1 mm;

a power semiconductor element;

a circuit pattern made of an aluminum alloy and provided on an upper main surface of said ceramic substrate and having a thickness 0.4 to 0.6 mm on which said power semiconductor element is held;

a lower pattern made of said aluminum alloy and provided entirely on a lower main surface of said ceramic substrate opposite to said upper main surface, wherein a thickness of said lower pattern is 0.2mm or less;

a metal base plate made of a copper alloy having a thickness of 3.5 to 5.5 mm positioned opposite to said lower pattern;